ALICEVILLE RESERVOIR
CRAPPIE MANAGEMENT REPORT
2006

Prepared by

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Introduction

The Alabama Reservoir Management Program was established in 1986 with the objective of collecting baseline information on important sport species in the State's reservoirs. Reservoirs are sampled periodically to establish trends in growth, recruitment, mortality and to identify problems with the major sport fisheries.

Aliceville Reservoir was previously sampled in 2001, 1999, 1994, 1990 and 1988. A high quality crappie fishery exists at Aliceville Reservoir and fish exhibited satisfactory growth, size structure and recruitment.

Methods

Aliceville Reservoir was sampled in fall 2005 according to the guidelines of the Alabama Reservoir Management Manual. Trap nets were fished at 12 sites to assess the crappie population. Nets were set on November 7, 2005, and then pulled the following day. Total length (mm) and weight (g) were recorded for all crappie collected in trap nets. Otoliths were removed from crappie > 100 mm TL and aged by District III personnel.

Results and Discussion

White Crappie

Three hundred and forty one white crappie were collected at a rate of 28.4 fish/net-night from 12 nets on November 8. Catch rates of white crappie during fall 2005 significantly exceeded the lake average (13.4), but was lower than the catch rate (47.3) recorded from the most recent trap netting sample in fall 2001. The 2001 year-class of crappie was exceptionally large, composing over 15% of the entire collection. This large year class has most likely impacted the crappie population in Aliceville Reservoir for the past several years, but over time, fewer individuals of the 2001 year-class will be available for anglers to harvest and they may perceive a decline in the quality of the crappie fishery. The Aliceville white crappie collection included nine age classes (ages 0+ to 9+). RSD values for Aliceville white crappie in 2005 were 34%, 21%, 14%, 29% and 2% for stock, quality, preferred, memorable and trophy size fish, respectively (Table 1). The RSD values for quality and preferred size fish were below statewide averages (33.1% and 23.8%, respectively) and approximated the 25th

percentile of RSD-Q and RSD-P values, statewide. However, the RSD-M value for Aliceville white crappie far exceeded the statewide average (7%) and was well above the 75th percentile of memorable-sized crappie, statewide. Catch rates for substock and stock size fish were very high, well above the 75th percentile of CPE values for crappie statewide, indicating excellent recruitment. Relative weight values (72 - 90) were near the lake average and similar to previous collections. Growth of white crappie was slightly below the lake average for crappie up to five years of age; however, fish Age 6+ and older had growth rates exceeding the lake average. Total annual mortality of white crappie was not reported because of highly variable year class strength.

Black Crappie

Forty four black crappie were collected in trap nets during November 2005, having an overall catch rate of 3.7 fish/net night (Table 3). Fifty seven percent of the collection was substock fish, indicating a relatively high rate of recruitment. Quality sized fish were not represented in the sample, but values for RSD-S and RSD-P were 94% and 6% respectively. A total of four age classes were represented in this collection (Ages 0+ to 3+). Relative weight values (92-98) were well above the lake average.

Summary

Overall, the white and black crappie populations in Aliceville Reservoir exhibited high catch rates and excellent recruitment. Growth of white crappie was above average for fish six years of age and older while younger fish had growth rates slightly under the lake average. White crappie had one very strong year class that is supporting the fishery with a large number of memorable sized fish. Crappie samples exhibited satisfactory size structure and relative weight values.

Recommendations

1) Resample Aliceville Lake in FY 2008-09.
2) Encourage an aggressive aquatic plant management program by the Army Corps of Engineers directed at preventing the spread of exotic aquatic plants.
3) Encourage more local bass clubs to participate in the BAIT Program.

Literature Cited

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Table 1. Relative stock density (RSD), catch per effort (CPE), and relative weight (Wr) of white crappie at Aliceville Reservoir.

		TOTAL NUMBER, CPE, PERCENT OF SAMPLE AND Wr																							
	Number	SUBSTOCK			RSD-S				RSD-Q				RSD-P				RSD-M				RSD-T				TOTAL	
Year	Samples	no.	cpe	ratio	no.	cpe	pct.	Wr	no.	cpe	pct.	Wr	no.	cpe	pct.	Wr	no.	cpe	pct.	Wr	no.	cpe	pct.	Wr	no.	cpe
1991	32	140	4.4	36	249	7.8	65	79	116	3.6	30	87	10	0.3	3	89	9	0.3	2	92					524	16.4
1992	32	53	1.7	30	52	1.6	29	75	44	1.4	25	84	70	2.2	39	87	12	0.4	7	83					231	7.2
1993	32	63	2.0	56	46	1.4	41	81	50	1.6	44	92	9	0.3	8	89	8	0.3	7	84					176	5.5
1994	32	63	2.0	36	44	1.4	25	71	48	1.5	27	80	66	2.1	38	82	17	0.5	10	88					238	7.4
1995	32	9	0.3	20	13	0.4	28	78	26	0.8	57	90	6	0.2	13	84	1	0.0	2	105					55	1.7
1996	32	252	7.9	283	19	0.6	21	70	17	0.5	19	86	44	1.4	49	93	9	0.3	10	92					341	10.7
1997	32	75	2.3	26	226	7.1	77	78	45	1.4	15	89	10	0.3	3	90	13	0.4	4	90					369	11.5
1998	32	405	12.7	555	49	1.5	67	73	12	0.4	16	87	11	0.3	15	91	1	0.0	1	89					478	14.9
1999	32	44	1.4	61	40	1.3	56	79	21	0.7	29	89	7	0.2	10	91	4	0.1	6	91					116	3.6
2000	32	49	1.5	31	50	1.6	32	81	78	2.4	50	87	25	0.8	16	85	4	0.1	3	93					206	6.4
2001	12	475	39.6	516	36	3.0	39	71	25	2.1	27	78	20	1.7	22	91	11	0.9	12	98					567	47.3
2005	12	143	11.9	72	67	5.6	34	72	42	3.5	21	75	28	2.3	14	83	57	4.8	29	90	4	0.3	2	88	341	28.4
Lake Average			7.3	144		2.8	43	76		1.7	30	85		1.0	19	88		0.7	8	91		0.3	2	88		13.4

Table 2. Age Composition and Mean Total Length of White Crappie

Age	Year Class	Number	Percent	CPE	Mean TL	SE	Range
0	2005	146	42.8	12.2	89.6	1.0	71 - 143
1	2004	81	23.8	6.8	188.0	2.0	150 - 237
2	2003	40	11.7	3.3	246.0	4.7	176 - 305
3	2002	9	2.6	0.8	278.3	13.3	204 - 319
4	2001	52	15.2	4.3	318.6	3.1	275 - 363
5	2000	3	0.9	0.3	339.3	9.9	320 - 353
6	1999	7	2.1	0.6	373.4	4.0	358 - 390
7	1998	1	0.3	0.1	368.0		
8	1997	0	0.0	0.0	0.0		
9	1996	2	0.6	0.2	381.0	2.0	379 - 383
Total		341	100.0	28.4			

Table 3. Relative stock density (RSD), catch per effort (CPE), and relative weight (Wr) of black crappie at Aliceville Reservoir.

		TOTAL NUMBER, CPE, PERCENT OF SAMPLE AND Wr																					
	Number	SUBSTOCK			RSD-S				RSD-Q				RSD-P				RSD-M				TOTAL	
Year	Samples	no.	cpe	ratio	no.	cpe	pct.	Wr	no.	cpe	pct.	Wr	no.	cpe	pct.	Wr	no.	cpe	pct.	Wr	no.	cpe
1991	32	13	0.4	33	16	0.5	40	72	10	0.3	25	83	10	0.3	25	92	4	0.1	10	80	53	1.7
1992	32	5	0.2	14	11	0.3	31	74	19	0.6	53	82	4	0.1	11	87	2	0.1	6	85	41	1.3
1993	32	7	0.2	33	15	0.5	71	74	6	0.2	29	83									28	0.9
1994	32	5	0.2	13	9	0.3	23	71	17	0.5	44	73	10	0.3	26	80	3	0.1	8	83	44	1.4
1995	32	5	0.2	500									1	0.0	100	97					6	0.2
1996	32	19	0.6	76	7	0.2	28	71	12	0.4	48	80	6	0.2	24	88					44	1.4
1997	32	12	0.4	24	28	0.9	55	72	18	0.6	35	83	5	0.2	10	90					63	2.0
1998	32	72	2.3	480	4	0.1	27	77	6	0.2	40	85	5	0.2	33	94					87	2.7
1999	32	24	0.8	120	9	0.3	45	74	8	0.3	40	80	1	0.0	5	96	2	0.1	10	92	44	1.4
2000	32	0	0.0	0	12	0.4	28	77	25	0.8	58	83	6	0.2	14	75					43	1.3
2001	12	0	0.0	0	7	0.6	35	73	5	0.4	25	75	7	0.6	35	89	1	0.1	5	93	20	1.7
2005	12	26	2.2	144	17	1.4	94	92					1	0.1	6	98					44	3.7
Lake Average			0.6	120		0.5	43	75		0.4	40	81		0.2	26	90		0.1	8	87		1.6

Table 4. Age composition and total length of black crappie

Age	Year Class	Number	Percent	CPE	Mean TL	SE
0+	2005	25	56.8	2.1	78	1.3
1+	2004	14	31.8	1.2	150	3.5
2+	2003	4	9.1	0.3	170	10.6
3+	2002	1	2.3	0.1	257	
Total		44	100.0	3.7		

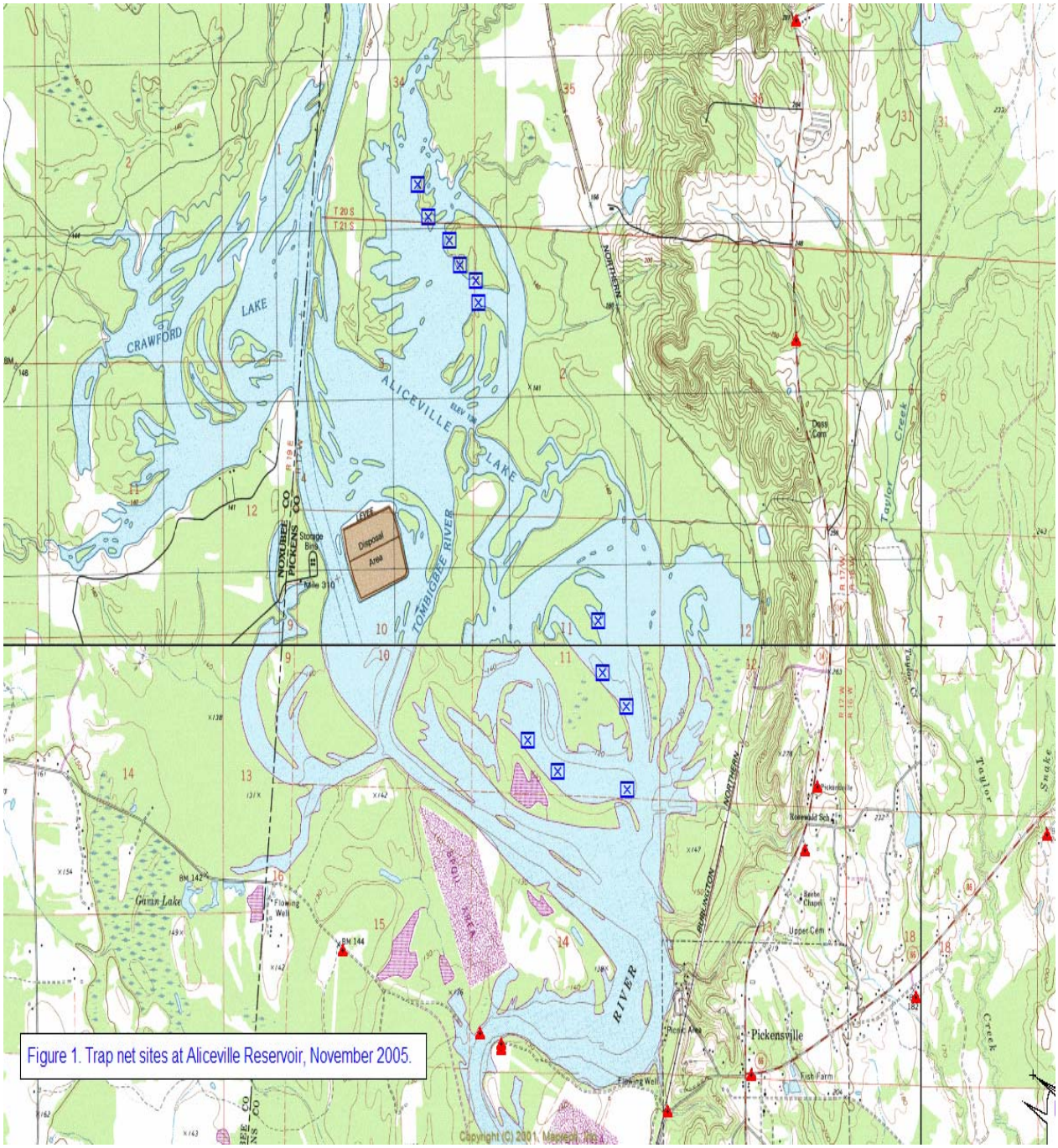

Figure 1. Trap net sites at Aliceville Reservoir, November 2005.

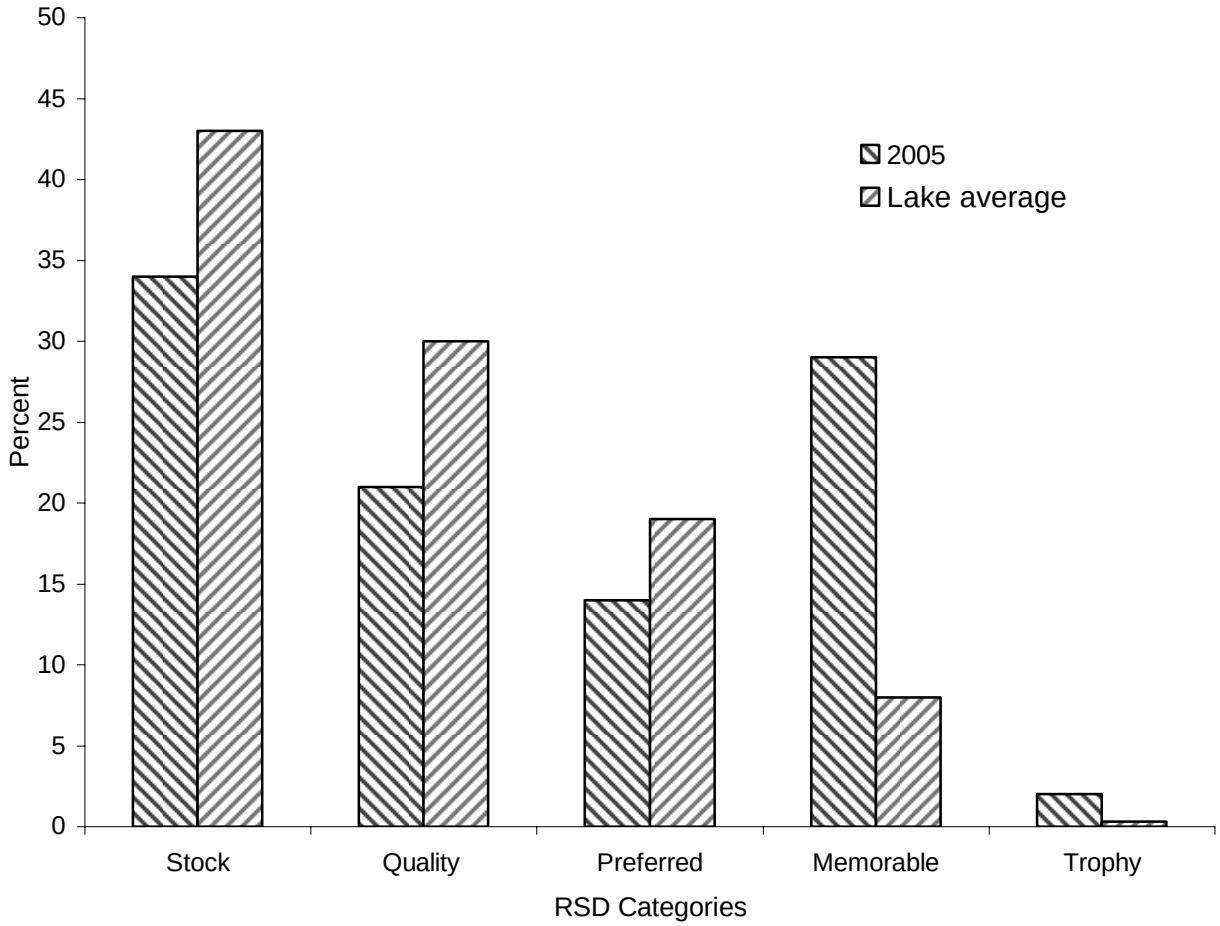

Figure 2. Relative stock density (%) of white crappie at Aliceville Reservoir.

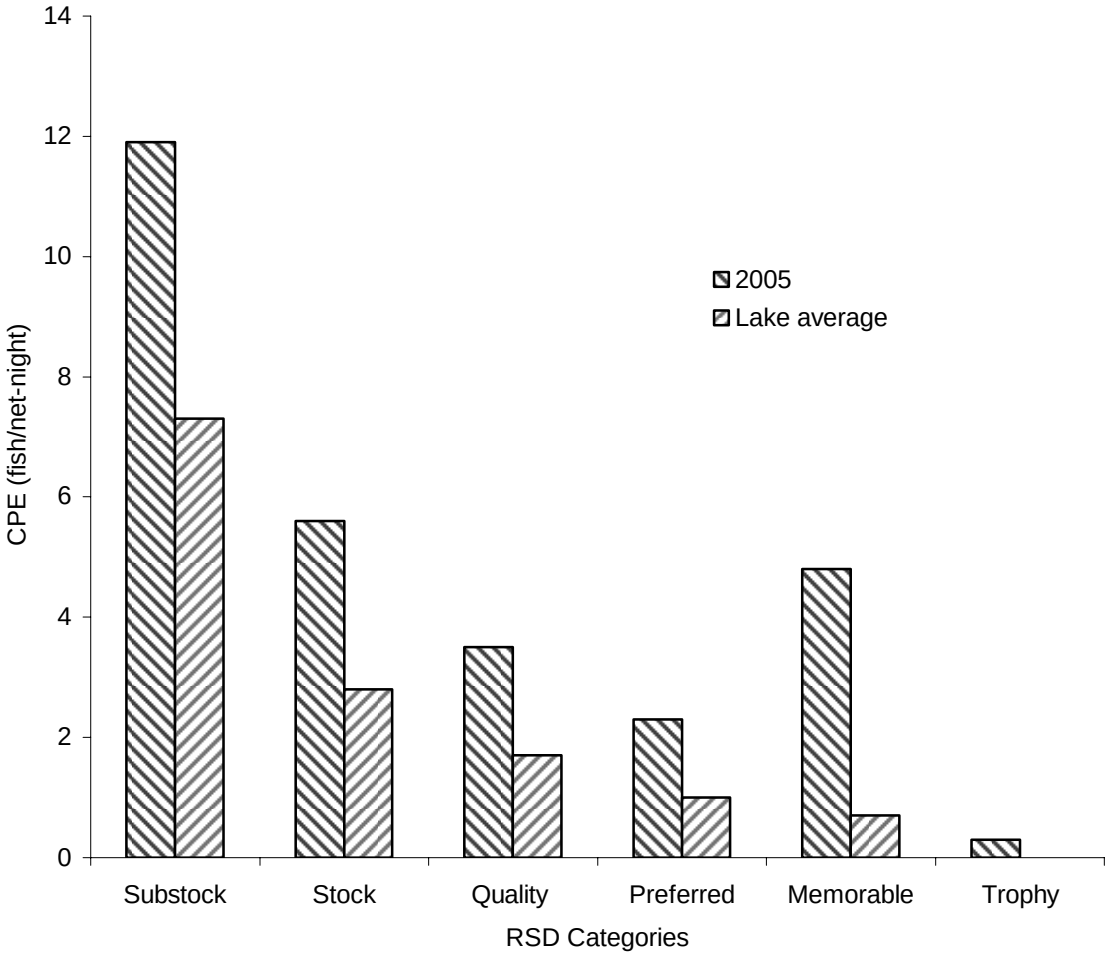

Figure 3. Catch per effort (CPE) of white crappie at Aliceville Reservoir.

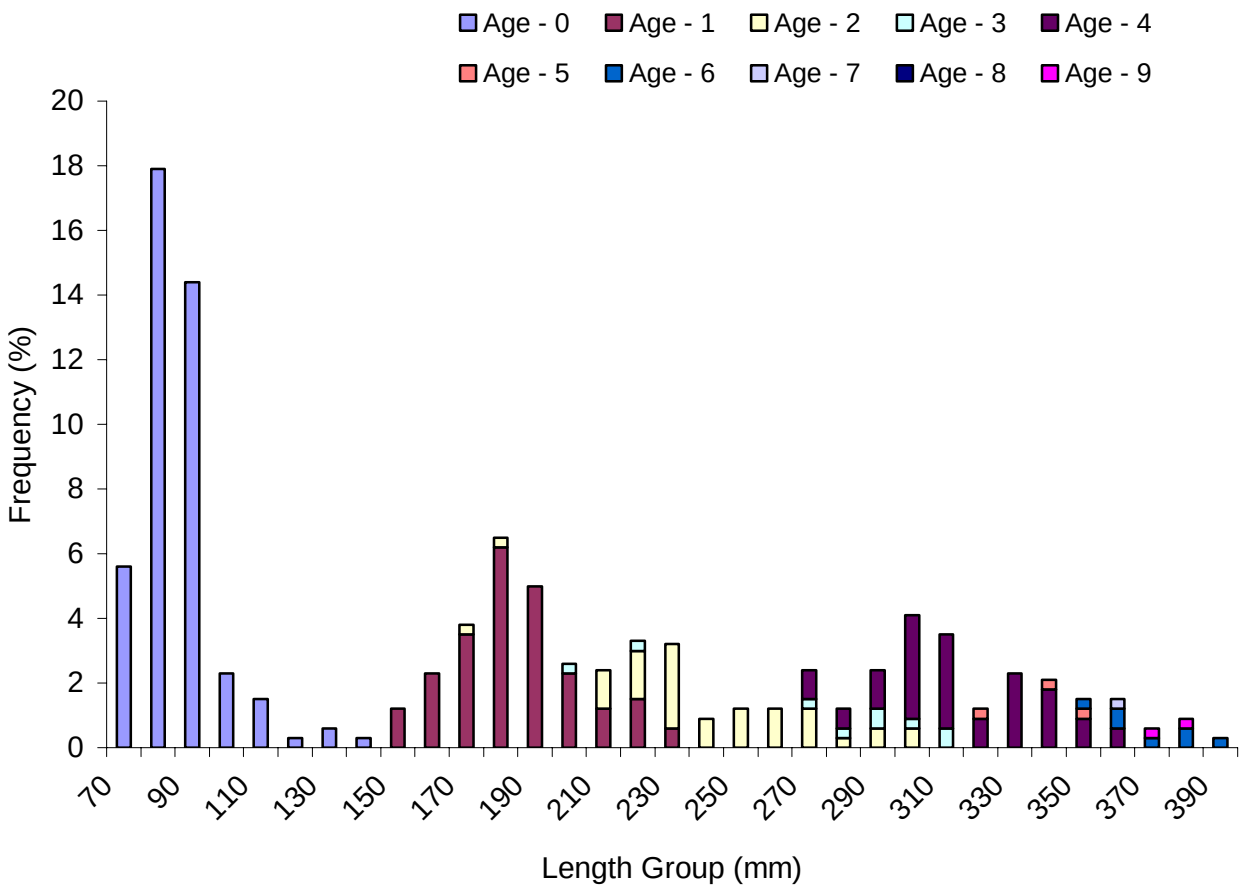

Figure 4. Length at age frequency of white crappie at Aliceville Reservoir, November 2005.

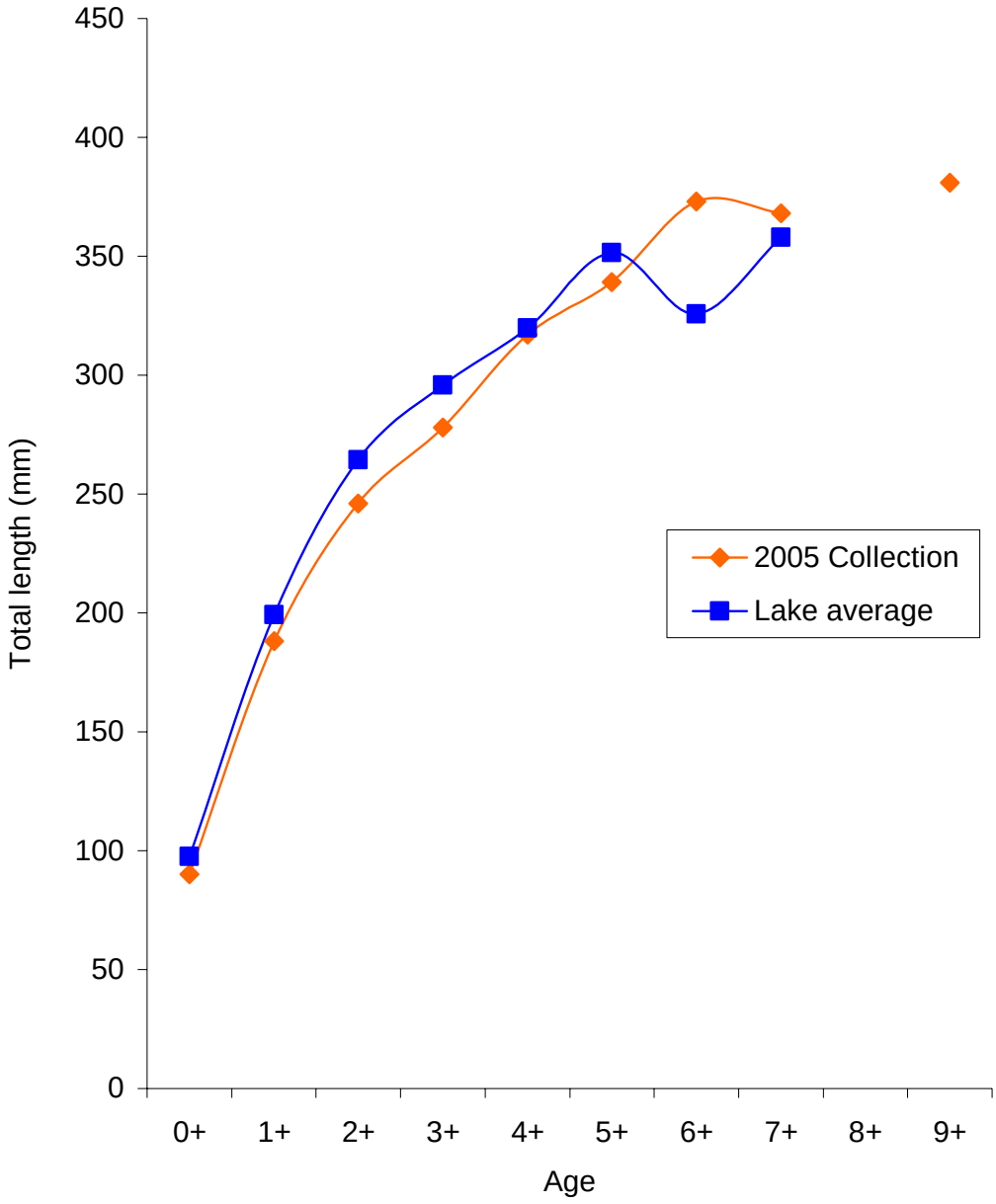

Figure 5. Growth of white crappie at Aliceville Reservoir.

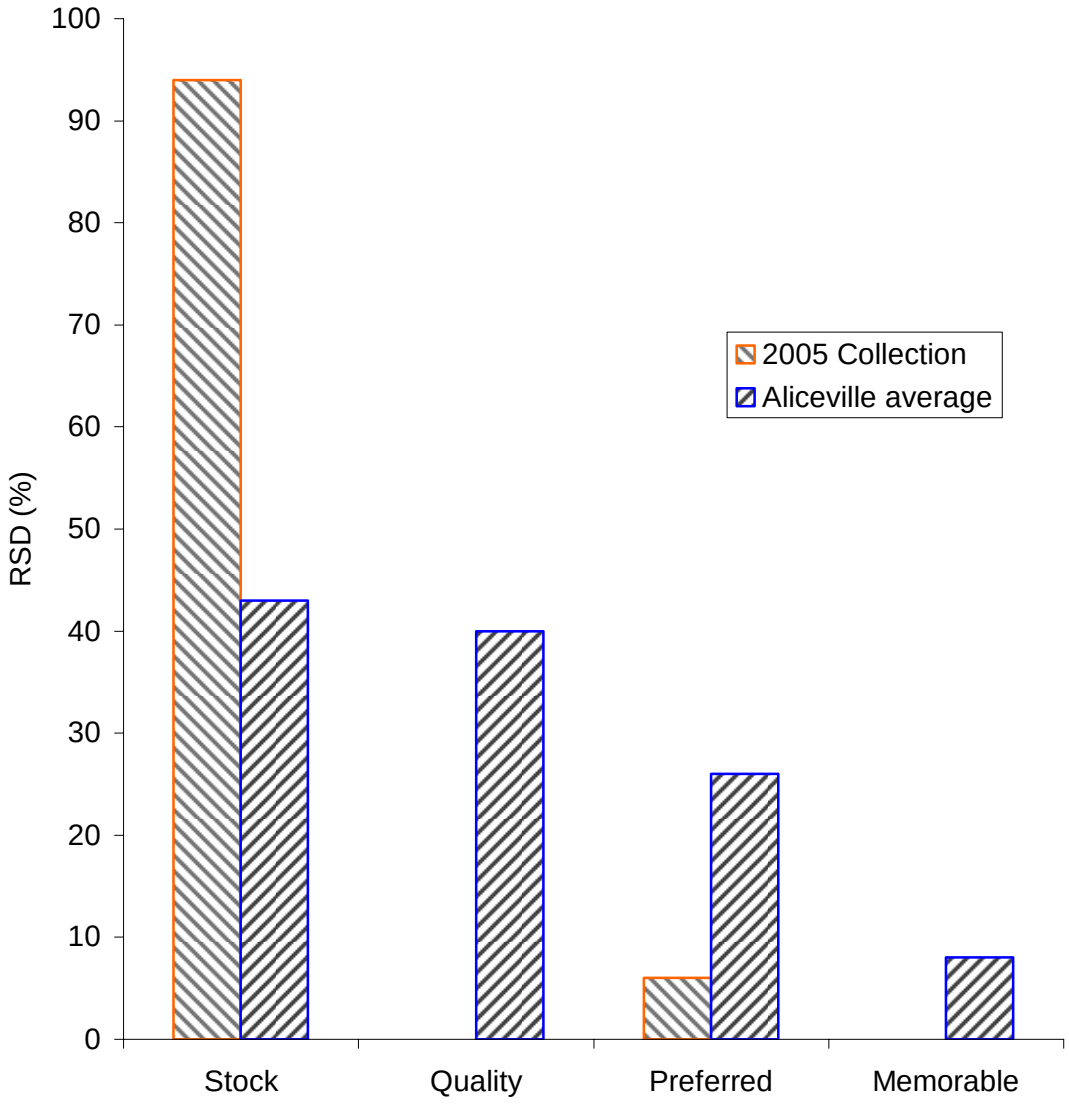

Figure 6. Relative stock density (RSD) of black crappie at Aliceville Reservoir.

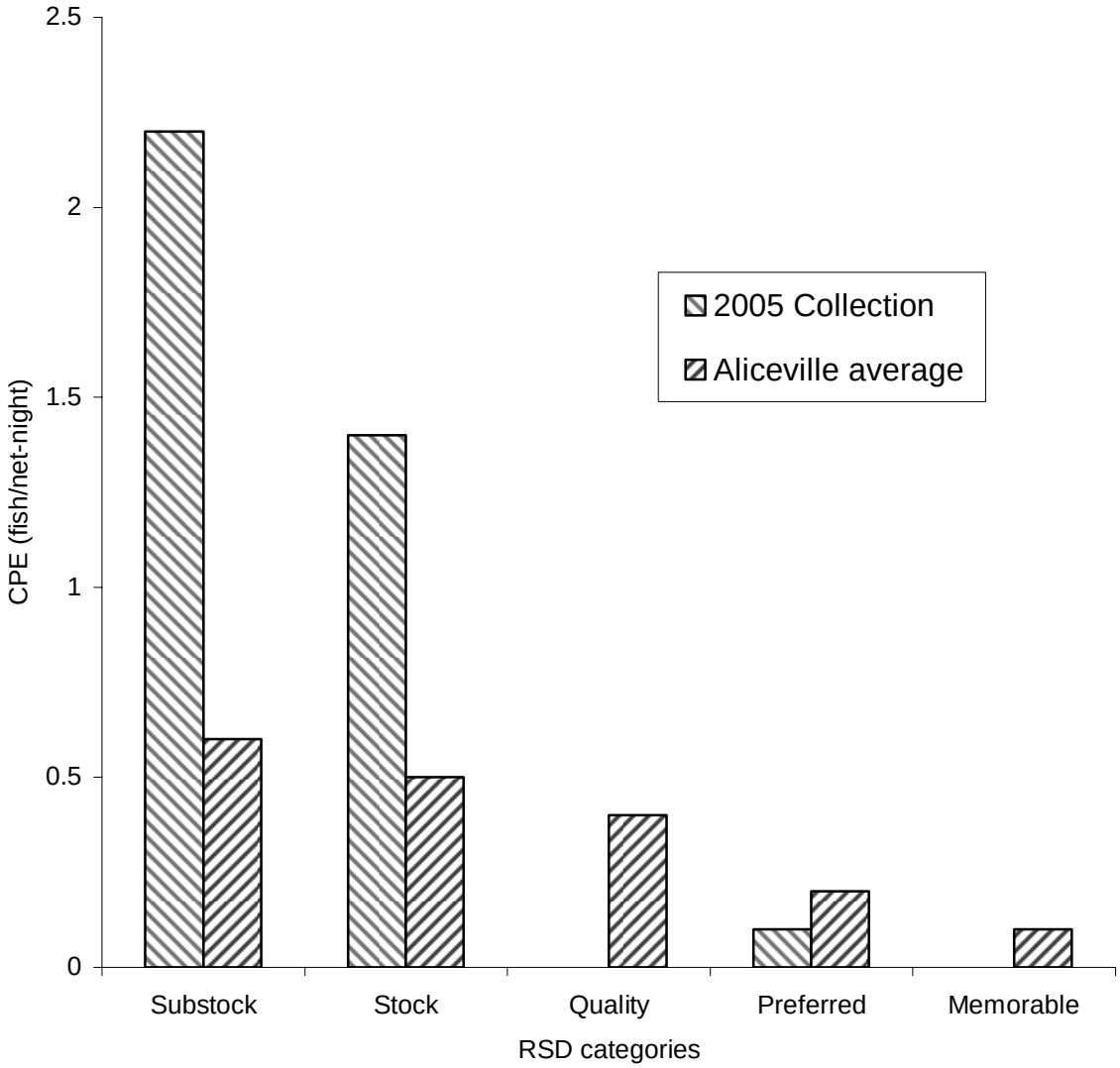

Figure 7. Catch per effort (CPE) of black crappie at Aliceville Reservoir.

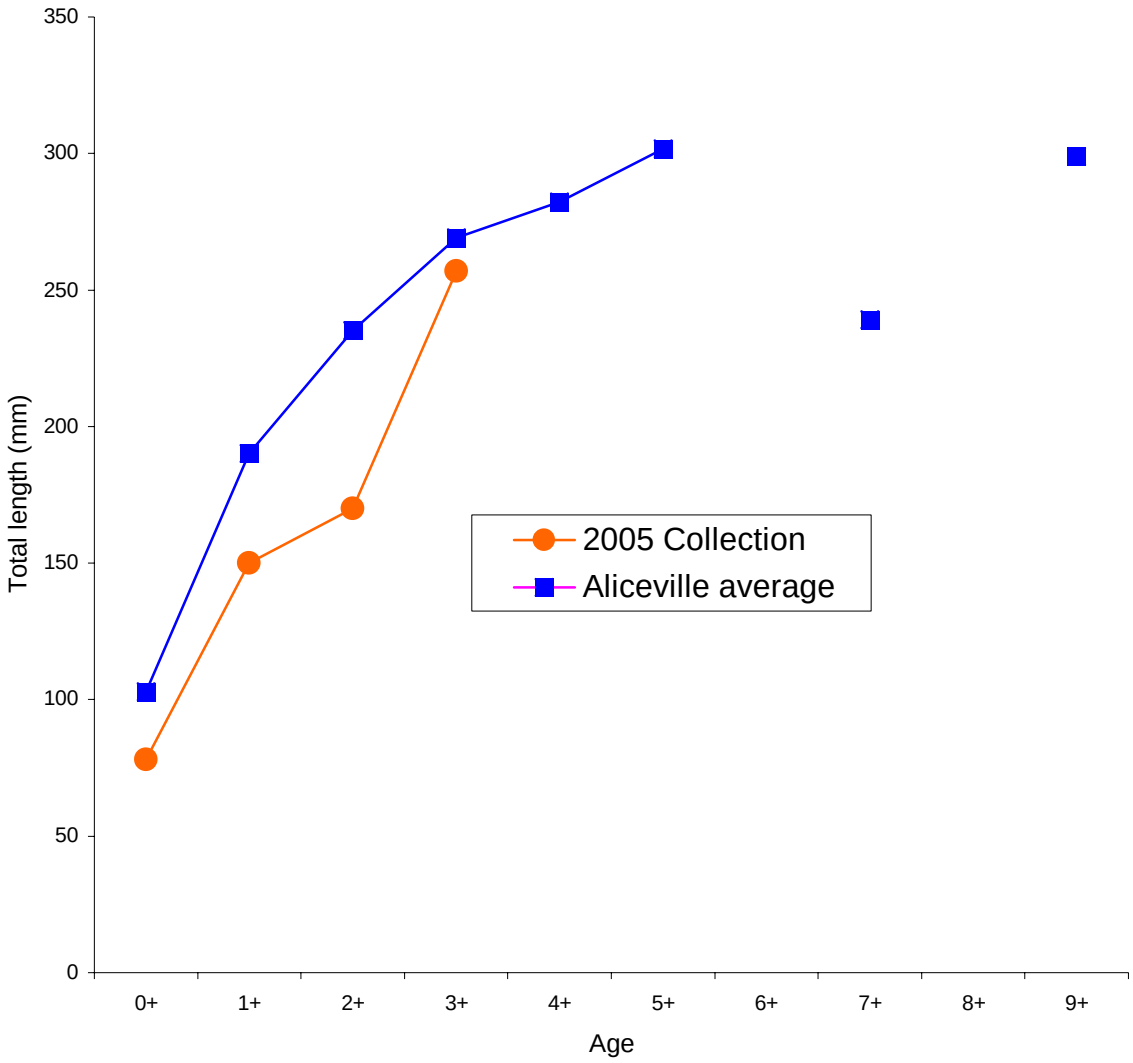

Figure 8. Growth of black crappie at Aliceville Reservoir.